

"branch prediction" + confidence + (value OR level)

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# A study of branch prediction strategies

JR Smith · 25 years of the international symposium on Computer ... 1996 · dl.acm.org

... at their maximum values, and hierarchical prediction would have been of no real **value** ... If counter ranges were broken into several intervals, a different **confidence level** being attached ... This paper studied the accuracy of **branch prediction** methods proposed elsewhere as well as ...  
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[PDF] from iastate.edu

# Dynamic branch prediction with perceptions

DA Alvarez · High Performance Computer Architecture ... 2001 · ieeeexplore.ieee.org

... By contrast, two-level PHT schemes like gshare can learn any Boolean function if given enough training time ... N perceptions in fast SRAM, similar to the table of two-bit counters in other **branch prediction** schemes ... Special circuitry computes the **value** of y and per- forms the training ...  
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[PDF] from psu.edu

# Assigning confidence to conditional branch predictions

E Jacobson, E Rosenberg · ... of the 20th annual ACM/IEEE ... 1988 · dl.acm.org

... Each such point defines a pair of high and low **confidence branch prediction** sets ... 3 One Level Dynamic **Confidence Mechanism(s)** ... Our preliminary studies also indicate that indexing with a global CIR is of little **value** → it gives low performance when used alone and typically ...  
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[PDF] from 125.105.2.28

# Selective value prediction

E Cohen, A Baccan · ... 1999 · Proceedings of the ... 1999 · ieeeexplore.ieee.org

... A predicted **value** should only be used if the **confidence** as- sociated with that **value** is above a ... We ex- amined several forms of **confidence** prediction and based our predictors on the **confidence** estimation techniques de- veloped for **branch prediction** and multiple ...  
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[PDF] from psu.edu

# Accurate indirect branch prediction

N Eisen · ACM SIGARCH Computer Architecture News, 1996 · dl.acm.org

... In analogy with the gshare predictor used in conditional **branch prediction** [CHP95], we can reduce the ... In two-level predictor, this part contains the lower order branch address bits ... The hybrid predictor selects the target with the highest **confidence value**, ties are resolved using a ...  
Cited by 112 · Related articles · BL Direct · All 35 versions

[PDF] from psu.edu

# Efficacy and performance impact of value prediction

B Bjork, J Fawell, B Krug · Parallel Architecture and ... 1998 · www.doc.ic.ac.uk

... **Branch prediction** allows the processor to temporarily ignore dependency edges in the control flow graph when scheduling instructions for execution ... Second-level table entries contain a tag, the prediction **value**, and **confidence** count ...  
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# Highly accurate data value prediction using hybrid predictors

K Wang · Proceedings of the 26th annual ACM/IEEE ... 1997 · dl.acm.org

... Nevertheless, it is worthwhile to take cues from the vast body of research on **branch prediction** ... respectively to the (i) last outcome scheme, (ii) last outcome scheme with **confidence** indicator, (iii) stride scheme, (iv) 2- level scheme (with PHT counter threshold **value** 3), (v) 2 ...  
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[PDF] from psu.edu

# Trace processors

E Rosenberg, G Jacobson · ... Thirtieth Annual IEEE ... 1997 · ieeeexplore.ieee.org

... If the granularity of traces can yield as good or better overall **branch prediction** accuracy than ... The **confidence** mechanism is a 2-bit saturating counter stored with each pattern in the ... Accuracy of context-based **value** prediction is affected by timing of updates, which we accurately ...  
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[PDF] from wisc.edu

# Confidence estimation for speculation control

LD Davidson, A Davidson, S Miron · ACM SIGARCH Computer ... 1998 · dl.acm.org

... If the **branch prediction** is of 'low **confidence**', the processor may switch to another avail- able thread ... ZLOC/L+ + ZLC, the probability that the branch is incorrectly predicted if it was low **confidence** A high **value** for P[ZQ] indicates that the processor can switch contexts only when ...  
Cited by 198 · Related articles · BL Direct · All 33 versions

[PDF] from berkely.edu

# Neural methods for dynamic branch prediction

DA Alvarez · ACM Transactions on Computer Systems (TOS), 2000 · dl.acm.org

... Recent efforts to improve **branch prediction** focus primarily on eliminating aliasing in two-level adaptive ... By contrast, traditional two-level adaptive schemes use pattern history tables (PHTs), which are ... of weights (which are learned through training) to pro- duce an output **value** ...  
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**Two-level adaptive training branch prediction**

TY Yeh. — Proceedings of the 24th annual international ..., 1991 - di.acm.org  
 ... dition schemes were simulated on the SPEC bench- mark suite. By using **Two-Level Adaptive Training Branch Prediction**, the average prediction **accuracy** for the benchmarks reaches 97 percent, while most of the other schemes achieve **accuracy** for the benchmarks reaches 83 percent ...  
 Cited by 533 - Related articles - All 52 versions

[PDF] from illinois.edu

**Alternative implementations of two-level adaptive branch prediction**

TY Yeh. — ACM SIGARCH Computer Architecture News, 1992 - di.acm.org  
 ... tions, and use these costs in evaluating their relative ef- fectiveness. We measure the **branch prediction accuracy** of the three variations of **Two-Level Adaptive Branch Prediction**, along with several other popular proposed dynamic and static prediction schemes, on the SPEC ...  
 Cited by 589 - Related articles - BI Direct - All 27 versions

[PDF] from pdx.edu

**A study of branch prediction strategies**

JE Smith. — 25 years of the international symposium on Computer ..., 1996 - di.acm.org  
 ... The least variation was in the ADVAN program in which the counters were virtually always at their maximum values, and hierarchical prediction would have been of no real **value** ...  
**CONCLUSIONS** This paper studied the **accuracy of branch prediction** methods proposed ...  
 Cited by 535 - Related articles - BI Direct - All 42 versions

[PDF] from iastate.edu

**Using hybrid branch predictors to improve branch prediction accuracy in the presence of context switches**

ME Evers, PY Chang. — ACM SIGARCH Computer Architecture ..., 1998 - di.acm.org  
 ... one; otherwise, the **value** is decremented by one. By keeping more history information, a higher **level of branch prediction accuracy** can be attained [14]. Yeh and Patt proposed the **Two-Level Branch Predictor** which uses two levels of history to make branch pre- ...  
 Cited by 154 - Related articles - BI Direct - All 20 versions

[PDF] from pku.cn

**Improving branch prediction accuracy by reducing pattern history table interference**

PY Chang, ME Evers. — International journal of parallel ..., 1997 - Springer  
 ... To improve prediction **accuracy**, various **branch prediction** strategies have ... The lower bits of the branch address select the appropriate Pattern History Table (PHT) and the **value** in the branch history register (BHR) selects the appropriate 2-bit counter to use within that ...  
 Cited by 129 - Related articles - BI Direct - All 15 versions

[PDF] from psu.edu

**Improving the accuracy of dynamic branch prediction using branch correlation**

ST Park, K So. — ACM SIGPLAN Notices, 1995 - di.acm.org  
 ... is 2N-1, it remains at that **value** as long as the branch is taken. ... is reported to produce fairly high prediction **accuracy** [10], its hard- actual result, 1-taka, C-not taken ..., our knowledge, very little work has been done in addressing the issue of branch correlation in **branch prediction** ...  
 Cited by 331 - Related articles - BI Direct - All 24 versions

[PDF] from u-szu.ac.jp

**Dynamic history-length fitting: a third level of adaptivity for branch prediction**

T Davis, B Sangwer. — ACM SIGARCH Computer ..., 1998 - di.acm.org  
 ... of lost cycles due to speculative execution of wrong-path instruc- tions, **branch prediction** has evolved ... Finally, prediction **accuracy** for gee, god and vxemx improves with more history bits but ... based on the current number of mispredictions and the minimum **value** encountered so far ...  
 Cited by 137 - Related articles - BI Direct - All 33 versions

[PDF] from psu.edu

**Accurate static branch prediction by value range propagation**

JRD Patterson. — ACM SIGPLAN Notices, 1995 - di.acm.org  
 ... Although these approaches are much better than trivial heuristics, their **accuracy** is still only mediocre ... There is a **strong** similarity between constant propagation and out ... The objective of any **branch prediction** algorithm is to determine the likelihood of taking each conditional ...  
 Cited by 117 - Related articles - BI Direct - All 15 versions

[PDF] from lighterna.com

**Highly accurate data value prediction using hybrid predictors**

K Wang. — Proceedings of the 30th annual ACM/IEEE ..., 1997 - di.acm.org  
 ... mutual hazards and increased execution time [3]. In this section, we describe techniques that substantially improve the **accuracy** of data ... However, it is not possible to directly apply these techniques to data **value** prediction, because **branch prediction** involves merely a ...  
 Cited by 354 - Related articles - BI Direct - All 25 versions

[PDF] from psu.edu

**Combining branch predictors**

S McFarley. — 1993 - di.acm.org  
 ... to both distinguish which of the two branches is being executed and what the current **value** of ... Thus, the prediction **accuracy** here would be as good as that of local prediction. Figure 7 compares the performance of the global prediction with local and bimodal **branch prediction** ...  
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<sup>a</sup>  $p$  value for each comparison ( $\alpha = 0.05$ , one-tail).

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... The link between changes in **branch misprediction** rate and changes in performance has been well documented [1] ... that a two-**level** branch predictor can achieve high levels of branch prediction **accuracy** [4]. In ... The first **level** function was originally the **value** of an N bit shift register ...

(PDF) from osu.edu

... This particular benchmark has the highest **branch misprediction** rate, and its performance seems to be determined by such branches. ... G. Tyson and T Austin, "Improving the **Accuracy** and Per ... "Highly Accurate Data **Value** Prediction using Hybrid Predictors", in Proc. of Int. Symp. ...  
Cited by 80 - Related articles - All 16 versions

PDF from [ilven.org](http://ilven.org)

... Speed and **accuracy** are natural concerns ... basic block on the execution model in the PUM while assuming optimistic cache behavior of 100% hit rate and no **branch misprediction** ... returns the set of operations that are in their last stage and have remaining cycle counter **value** of 0 ...

(pdf) from osu.edu

B Calder, S Bhattacharjee - 1990. Proceedings of the ... 1990 - [computer-arch.org](#) ...  
... section of a fault, TLB miss, **branch misprediction** or load misprediction ... prediction entry in the  
**value** table contains an N-bit history register, keeping track of the **accuracy** of the ... makes will most  
likely be incorrect, and the confidence counter will end up set to a **strong** not predict ...  
Cited by 262 - Related articles - ESI Direct - All 33 versions

repro from leela.c

DO Lee, HCK Chen, 1992, Proceedings, Tbilisi, 1997, [www.pse.phys.cmu.edu](http://www.pse.phys.cmu.edu)  
 For each benchmark, we present results using the configuration that yields the best **accuracy** for the ... In Figure 2, the vertical axis represents the **branch misprediction rate** and the horizontal axis ... Ideally, the index should generate highly biased substreams so that the **value** of the ...  
 Cited by 209 - Russian articles - SI Direct - All 30 versions

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... a function of this critical path metric optimization fre- quency, and optimization **accuracy** ... to the fixup code where the computation proceeds with the non-speculative **value** ... This approach introduces unnecessary **branch misprediction** when the branch predictor directs instruction ...

ipdfn from osu.edu

K. Driesen, - *Proceedings of the 31st annual ACM/IEEE ...* (date - 20 years/09)  
... branches, we believe that it could also improve conditional branch prediction and **value** prediction, ...  
a total of 266 prediction table entries achieves virtually the same prediction **accuracy** as the ...  
interference for 24-bit pattern Table 2 indirect **branch misprediction** causes for a BTB ...  
Edited by 25. Related articles - Bi Direct - All 24 versions

(PDF) from [utah.edu](http://utah.edu)

DA: America - ... 3893 ... CHRO: 34 Pincoske, 38th Avenue ... 2009 ... reexplains.teeec.org  
... **Branch misprediction** latency is the most important com- ponent of performance degradation as  
microarchitectures become ... a prediction is needed, the weights vector corresponding to that  
**value** of  $xy$  ... of  $qrv$  ... they can be bitwise complemented with very little impact on accuracy. ...  
Cited by 102 - Related articles - 51 Direct - All 26 versions

rpoff1 from osu.edu

... by running the program through a branch prediction simulator and recording the **branch misprediction** rate of ... The results for McFarling with JRS are similar to those using the "Both **Strong** estimator ... far less expensive to target a high **SPEC value** and increase the **accuracy** of the ...  
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... Recent studies have shown that large or multi-process workloads with a **strong OS component** ... we quantify aliasing and assess the effect of conflict aliasing on overall branch-prediction **accuracy** ... bits and global history bits are XORed together to form an **index value**', whereas in ...  
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Articles

# Analysis of branch prediction via data compression

(PDF) from umich.edu

I. Chen, K. Cheng, J. T. Colley, ... ACM SIGOPS Operating Systems Review, 1998, 62:4:1-10

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... predictors in Section 3.1.1, it can be seen that there are **strong** similarities. ... eg. knowledge about the program exe- cuting) can **always** be used to improve the prediction **accuracy** ... The vertical axis indicates **branch misprediction** rate, and the horizontal axis indicates the size of pre- ... Cited by 126 - Related articles - BL Direct - All 17 versions

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## Trading conflict and capacity aliasing in conditional branch predictors

(PDF) from ri.edu

P. Michienzi, S. S. S. ... ACM SIGARCH Computer Architecture News, 1997, 27:3:1-10

Recent studies have shown that large or multi-process workloads with a **strong** OS component exhibit very high degree of aliasing [31, 51], and require much larger predictor tables than previously ... In last two of Table The 2-bit counter gives prediction **accuracy** an unalised ... Cited by 135 - Related articles - BL Direct - All 27 versions

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## Completion time multiple branch prediction for enhancing trace cache performance

(PDF) from pku.cn

S. N. Lee, B. Black, ... ACM SIGARCH Computer Architecture News, 2000, 30:3:1-10

The experimental data implies that there is **strong** path locality, and that the example shown in ... The TMP performs multiple branch prediction relying on the **accuracy** of individual tree-node ... with the oldest completed block not in the previous trace, or after a **branch misprediction** ... Cited by 34 - Related articles - BL Direct - All 15 versions

## Fast path-based neural branch prediction

(PDF) from utah.edu

D. A. Jimenez, ... 2003 MICRO-36. Proceedings 36th Annual ... 2003, IEEE explore IEEE.org

... **Branch misprediction** latency is the most important com- ponent of performance degradation as microarchitectures ... Sec- ond, **accuracy** is improved because the predictor incorpo- rates path information into ... weights are kept closest to the logic that computes the **final** ory value for ... Cited by 102 - Related articles - BL Direct - All 44 versions

## The bi-mode branch predictor

(PDF) from leela.pt

D. Lee, K. Chen, ... 1997 Proceedings, Thirteenth ... 1997, IEEE explore IEEE.org

... outcome but the selected counter of the direction predictors makes a correct **final** prediction ... each benchmark, we present results using the configuration that yields the best **accuracy** for the ... In Figure 2, the vertical axis represents the **branch misprediction** rate, and the hori- zontal ... Cited by 209 - Related articles - BL Direct - All 30 versions

## Selective value prediction

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B. G. G. ... 1999 Proceedings of the ... 1999, IEEE explore IEEE.org

... tecton of a fault, TLB miss, **branch misprediction**, or load misspeculation ... prediction entry in the value table contains an N-bit history register, keeping track of the **accuracy** of the ... makes will most likely be incorrect, and the confidence counter will end up set to a **strong** not predict ... Cited by 232 - Related articles - BL Direct - All 33 versions

## Improving branch prediction by dynamic dataflow-based identification of correlated branches from a large global history

(PDF) from uconn.edu

B. Thomsen, M. Franklin, C. Wilkerson, ... ACM SIGARCH Computer ... 2003, IEEE explore IEEE.org

... [8] went one step further, and showed that for 16-bit histories, the prediction **accuracy** is not ... the next branch, all registers that get updated in that basic block will have the last branch marked as ... **branch misprediction** is detected, speculative updates to the ARF have to be repaired. ... Cited by 44 - Related articles - BL Direct - All 19 versions

## Variable length path branch prediction

J. Smith, M. Evers, ... ACM SIGOPS Operating Systems Review, 1996, 62:4:1-10

... into the table using the last N target addresses, and using profiling information to select the proper value of N for each branch, extremely accurate ... For comparison, the gshare predictor, a predictor known for its high **accuracy**, has a conditional **branch misprediction** rate of 8.6 ... Cited by 76 - Related articles - BL Direct - All 6 versions

## The effects of predicted execution on branch prediction

(PDF) from psu.edu

Q. S. Ye, ... Proceedings of the 27th annual international ... 1994, IEEE explore IEEE.org

... prediction schemes range in **accuracy** (and complexity) from simple static techniques exhibiting moderate **accuracy** (in 60-92) to ... approach has an associated **branch misprediction** ... The final branch prediction strategy modeled is the two level adaptive strategy developed by Yeh ... Cited by 79 - Related articles - All 17 versions

## Decoupled value prediction on trace processors

(PDF) from psu.edu

S. Lee, Y. Wang, ... High-Performance Computer ... 2000, IEEE explore IEEE.org

... to be delivered to the VPB even if the trace fetch is stalled due to a trace cache miss, a **branch misprediction** or an ... measure the performance based on the prediction **accuracy**, not the prediction rate because it is the prediction **accuracy** which affects the **final** performance ... Cited by 42 - Related articles - All 16 versions

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... Our study begins in the next section with two **branch prediction** strategies that are often suggested. ... belonging to each of the categories are discussed, and further refinements intended to reduce cost and increase **accuracy** are presented ... Conclusions are given in the **final** section ...

[PDF] from [www.scribd.com](http://www.scribd.com)

... **Prediction** that achieves substantially higher **accuracy** than any other scheme reported in the literature. The mechanism uses two levels of branch history information to make predictions, the history of the last *k* branches encountered, and the branch behavior for the last *s* occ...

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... mo- tivation for proposing a new, higher **accuracy** dynamic **branch prediction** scheme  
The new scheme uses two levels of branch history information to make predictions.  
The first level is the history of the last n branches. The ...

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```
... algorithm walks each individual branch history tree to determine the minimum number of unique  
paths necessary to maximize this branch's prediction accuracy. ... history_tree_node htnode) BE3fN  
If htnode has no children THEN If path ending at htnode causes final branch to ...  
QWd how 131 | Branches articles | At Dinesh | All 37 versions
```

## (pdf) from umich.edu

1. Gower, K. *Chemical Data Analysis: An Introduction to Quantitative Chemometrics*. ... 1996. ... diastereoisomers ... Different mappings often have great influence on the **final prediction accuracy** ... Among the various **branch prediction schemes**, two-level or correlation based predictors are among the best ... one of Markov predictors in Section 3.1.1, it can be seen that there are **strong similarities** ... Cited by 126. Related articles: Bi. Disc. - All 17 versions

... This second array of counters switches between the two predictors to select one 50 for a **final prediction** ... **SUMMARY OF THE INVENTION** The invention provides an improved **accuracy branch prediction** mechanism to minimize the time lost to erroneous 50 predictions that ...

[PDF] from <http://www.scribd.com/doc/5542844>

... This section describes the Elastic History Buffer (EHB) **branch prediction** scheme ... Finally, branches which are both **strong** d and uncorrelated may dispense with dynamic pre ... We can see that, on average, the prediction **accuracy** of our scheme is within 0.5% of the upper bound ...

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... We [1] introduced the idea of dynamically collecting two levels of branch history, branch execution history and pattern history, to achieve substantially higher **accuracy** than ... our algorithm Two-level Adaptive **Branch Prediction** ... last  $k$  branches encountered. ...  
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1. [T. J. van der Storm](#) ... ACM SIGARCH Computer ... [File: branchpred](#)  
... of lost cycles due to speculative execution of wrong-path instructions, **branch prediction** has  
ever lost ... Finally, prediction **accuracy** for gee go and vorrex improves with more history bits but  
quickly ... number of mispredictions that occurred the last inter-val when a history length of n ...  
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... The experimental data implies that there is **strong** path locality, and that the example shown in Figure 5 is rather unusual and not the common case 11 11 ... The TMP performs multiple **branch prediction** relying on the **accuracy** of individual free-node predictors. ...

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Trace processorsE. Richardson, D. Jacobson, ... • The 1997 Annual IEEE ... 1997 • [IEEE Xplore](#) [IEEE.org](#)

... The result may be a local **value** only, a live-out **value** only, or both; in any case ... Global result buses correspond directly with write ports to the global **register** file, and are **cheap** ... In a conventional processor, a **branch misprediction** causes all subsequent instructions to be squashed ...

Cited by 414 • Related articles • BL Direct • All 69 versions

[\[PDF\] from wisc.edu](#)Selective value predictionS. Ouellet, D. Baer, ... • 1999 • [Proceedings of the ... 1999](#) • [IEEE Xplore](#) [IEEE.org](#)

... When an instruction uses a predicted **value**, its own register entry is also marked as speculative, and its ... Simulation is execution-driven, including execution down any speculative path until the detection of a fault, TLB miss, **branch misprediction** or load misspeculation ...

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[\[PDF\] from psu.edu](#)Pipeline processor with enhanced method and apparatus for restoring register-renaming information in the event of a branch mispredictionPC Yeager, M. Khourshed, ... US Patent 5,758,112 • 1998 • [Google Patents](#)

... [1] Patent Number [45] Date of Patent: 5,758,112 May 26, 1998 [54] PIPELINE PROCESSOR WITH ENHANCED METHOD AND APPARATUS FOR RESTORING REGISTER-RENAME INFORMATION IN THE EVENT OF A BRANCH MIS\_PREDICTION [75] Inventors: Kenneth C. ...

Cited by 42 • Related articles • All 2 versions

Method and system for minimizing branch misprediction penalties within a processorG. Dwyer, R. T. Golla, ... • US Patent 5,934,103 • 1997 • [Google Patents](#)

... the present invention relates to a method and system for executing instructions within a processor such that the **branch misprediction** penalty incurred ... In some cases, the condition **register value** upon which a conditional branch depends can be ascertained prior to executing the ...

Cited by 36 • Related articles • All 2 versions

Variable length path branch predictionJ. Shah, M. Evers, ... ACM SIGOPS Operating Systems Review, 1998 • [ACM.org](#)

... For comparison, the gshare predictor, a predictor known for its high accuracy, has a conditional **branch misprediction** rate of 8.8% given the ... branch.) At the end of the second step, the **final** candidate that is selected for each branch is the candidate ... **register value** must be used ...

Cited by 78 • Related articles • BL Direct • All 8 versions

Improving branch predictors by correlating on data valuesT. H. Hail, Z. Smith, ... Microarchitecture, 1999 • MICRO-99 • 1999 • [IEEE Xplore](#) [IEEE.org](#)

... After a **branch misprediction**, the count for each squashed branch is decremented ... It stores its set difference in the table, and sets the valid bit for the output architectural **register** ... with the SimpleScalar 2.0 suite [2], modified to simulate the B-Mode predictor, the **value** history table ...

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[\[PDF\] from omu.edu](#)Detailed analysis of branch mispredictions and its application to early resolution of branch outcomes [\[PDF\] from psu.edu](#)A. Faray, O. Tardieu, R. Espasse, ... • of the 31st Annual ACM SIGOPS ... 1998 • [ACM.org](#)

... The **branch misprediction** is high because the branch condition depends on table values, even though for ... Then, each time a tagged instruction is decoded, the instructions producing its **register** operands, is, the ... We need to predict at iteration 1 the **value** of the operands of the ...

Cited by 67 • Related articles • BL Direct • All 14 versions

Reducing register ports for higher speed and lower energyJ. Ravi, M. P. ... MICROARCHITECTURE, 2002 • MICRO-02 • 2002 • [IEEE Xplore](#) [IEEE.org](#)

... Rename Issue Bypasses **Branch misprediction** penalty Bypass check ... However, as in a conventional pipeline, the bypass control logic determines that the operand should come from bypass and discards the **register value**. This lost opportunity is insignificant in practice ...

Cited by 140 • Related articles • BL Direct • All 18 versions

[\[PDF\] from purdue.edu](#)Branch ordering bufferG. Boggs, S. Walcott, ... • US Patent 6,798,281 • 2004 • [Google Patents](#)

... as well as the new physical **register** (new PREG) which will contain the new **value** for the ... to copy said shadow state to said primary state in response to a **branch misprediction** 40 being ... array and said shadow array; said history buffer to store historical physical **register** to logical ...

Cited by 64 • Related articles • All 2 versions

The PowerPC 620 microprocessor: a high performance superscalar RISC microprocessorD. Lenstra, T. Frowde, ... Computer's Technology for the ... 1995 • [IEEE Xplore](#) [IEEE.org](#)

... In the case of a **branch misprediction**, dispatch and execution resumes with the proper instruction stream ... For a conditional branch instruction in the dispatch buffer whose condition depends on the **value** of the Count **Register**, the prediction is made based on the Count **Register value** ...

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# On embedding a microarchitectural design language within Haskell

J Launchbury, JR Lamm... - ACM SIGPLAN Notices, 1996 - Elsevier

... At a **branch misprediction**, **register** mapping tables must be modified to invalidate the contents of registers that contain results of rescheduled instructions ... Without strictness, the **final value** would simply be returned, with none of the effects having been performed ...

Cited by 49 - Related articles - BI, Direct - All 15 versions

[PDF] from psu.edu

## Low-overhead core swapping for thermal management

S Raman, S Redaiah, S Sati, A Rajasekhar... - Power-Aware..., 2006 - Springer

... The mechanism stays active until the die temperature drops below the critical **value** ... The address predictors are moved further away from the core pipeline in the microcore. There is also a hybrid **value** predictor [24], predicting only load instructions ...

Cited by 16 - Related articles - BI, Direct - All 17 versions

[PDF] from uwaterloo.ca

## Method and system for changing the executable status of an operation following a branch misprediction without refetching the operation

M Alsop... - US Patent 7,197,630, 2007 - Google Patents

Page 1: US007197630B1 (12) United States Patent (a) Patent no.: us 7,197,630

Alisop et al. (45) Date of Patent: Mar. 27, 2007 (54) METHOD AND SYSTEM FOR

CHANGING THE EXECUTABLE STATUS OF AN OPERATION ...

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## Evaluation of Core Technology

J Launchbury, JR Lamm... - 2007 - CTRC Document

... At a **branch misprediction**, **register** mapping tables must be modified to invalidate the contents of registers that contain results of rescheduled instructions. The contents of registers that are possibly live must be preserved until after the branch has ... Without strictness, the **final value** ...

Related articles - Library Search - All 3 versions

[PDF] from dte.mil

## System and method of implementing microcode operations as subroutines

M Alsop... - US Patent 7,064,110, 2010 - Google Patents

... PUSHA instruction specifies that eight general 30 purpose x86 registers be pushed onto a stack defined by the **value** in the ... In response to detecting the **branch misprediction**, **register** names within one or more other operations included in the first microcode subroutine may be ...

Related articles - All 2 versions

## Dependency table for reducing dependency checking hardware

MS Chinnaiyand, TM Tran... - US Patent 6,249,382, 2001 - Google Patents

Cited by 26 - Related articles - All 2 versions

## Dependency table for reducing dependency checking hardware

MS Chinnaiyand, TM Tran... - US Patent 6,198,799, 2000 - Google Patents

Cited by 16 - Related articles - All 2 versions

## (book) Exploiting short-lived values for performance and energy efficiency in high performance microprocessors

D Stalpin... - 2007 - books.google.com

... **Register** renaming is used to overcome false data dependencies, by mapping each dynamic instance of an ... entry indicates if the corresponding **value** is speculatively produced, or if the **value** is a ... the RF to writeback the results values they produced, and at the **final** pipeline stage ...

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